

From: Keese, David L

Sent: Monday, May 17, 2010 12:10 PM

To: Richard L Garwin; Bodette, Amy; Majumdar, Arun; 'gcooper@berkeley.edu'; 'jholdren@ostp.eop.gov'; 'katz@wuphys.wustl.edu'; 'Marcia K McNutt'; Tatro, Marjorie; OConnor, Rod; 'slocum42@GMAIL.COM'; Rediger, Tony

CC: Hurst, Kathleen T; Stuart, Bryn Barbara; Valdez, Salli; Bickel, Thomas C; Hunter, Tom

Subject: Additional background info for today's telecon

Attachments: RE: Ball bearing impedance for more margin

All,

Tom Hunter requested that I share the attached email with the entire team. I apologize if some of you may be receiving this information twice. Thanks.

David

David L. Keese

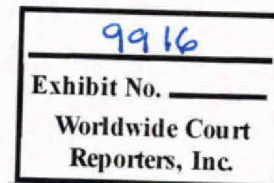
Chief of Staff to the Lab President

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From: Keese, David L.
To: 'SCHU'
CC: Hurst, Kathleen T
BCC:
Subject: RE: Ball bearing impedance for more margin
SentOn: 5/17/2010 10:28:10 AM
ReplyTo:
Body: Dear Secretary Chu,

Tom Hunter asked that I forward the two attached email messages that contain the following:

- A list of questions requiring Lab assistance from Paul Tooms
- Detailed wellbore information

I apologize if you have already received this information from other sources but Tom felt this would be very useful for today's telecon. We will continue to forward information as it is received.

David

David L. Keese
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Attachments:

FW Quetsions for National Labs.msg
FW Well Plan.msg

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SNL093-014794

TREX 009916.0002

From: Hurst, Kathleen T
To: Keese, David L
CC: Hurst, Kathleen T
BCC:
Subject: FW: Quetsions for National Labs
SentOn: 5/17/2010 10:03:05 AM
ReplyTo:
Body:

From: Tooms, Paul J [mailto:paul.tooms@uk.bp.com]
Sent: Sunday, May 16, 2010 6:26 AM
To: Hunter, Tom; Tatro, Marjorie
Cc: Marcia K McNutt; Dupree, James H; Brookes, David; Looney, Bernard; Kate.Baker@bp.com
Subject: Quetsions for National Labs

Tom, Marjorie

Please find attached the written questions that we are requesting the labs assist us with.

Please call me or Kate Baker if you have any questions or require clarification on the above.

With regards

Paul

Paul Tooms

VP Engineering

Mobile phone number: +44 (0) 778 597 3421

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Middlesex TW16 7LN

Company Details: BP Exploration Operating Company Ltd

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Registered in England and Wales Number 305943

Attachments:

Questions for National Labs.doc

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SNL093-014795

TREX 009916.0003

Questions for which National Labs' Assistance Would be Beneficial

1. Question: **What is the maximum predicted shut-in pressure at the mudline?**

Requested by Mike Mason at noon meeting 14 May.

This question is already under consideration by several groups, and discussions have been most helpful. Separate calculations from 3 other groups in the National Labs are expected Sunday. This is the number one priority.

2. Question: i) **Calculate the mass flow rate through the system for the 4 geometries** based on the pressures (in the pressure folder) and the reservoir properties and other information provided through Chris Cecil, in the file named Subsurface_situation_Macondo(3).ppt in the Wellbore folder. We believe the first two are the flow geometries to focus on. ii) Given a constant flow rate of 5000 stock tank barrels (STB) of oil per day, an initial reservoir pressure of 11,850 psi (see below) and the reservoir properties provided, for the "hanger failure annular flow drill-pipe only" case, how does the pressure vary along the flow profile (up the outer annulus, down the inner annulus and out the drill pipe)?

This question or set of questions was originally conceived by those participating in the 1800 meeting 12 May.

Additional information you may need: The reservoir pressure of 11,850 psi is the original static reservoir pressure at 17,991 feet true vertical depth subsea (TVDSS), or 12,999 feet below mudline, given a water depth on location of 4992 feet. Owing to well inclination, the measured depth of the well at 17,991 feet TVDSS is 13,047 feet measured depth below the seabed. Ambient pressure at the mudline is 2270 psi.

This work is already in progress but the questions are restated here to ensure clarity of purpose.

3. Question: **What is the likely pressure external to the 16" casing under static conditions?**

This is a new request made by Paul Tooms and Kate Baker on 15 May

Additional information you may need: Annotated 1":100' MD combo log.

4. **We would value an independent review of the dynamic kill pumping schedule.**

Top kill of the well, if successful, would shut off the well flow more quickly than other options available, but we should only undertake such an operation if we are confident that there exists a window of achievable pump rates and pressures high enough to kill the well but low enough to avoid further damage to the well construction. We envision such a review might include 5 or 6 scientists/engineers from the National Labs holding a range of relevant domain expertise. To allow time to use the outcomes of such a review to inform the forward plan and yet move forward expeditiously to halt the flow of hydrocarbons, we hope such a review might take place on Monday, 17 May. We believe

BP staff and contractors can be ready to present by then if you can assemble the right expert team on such notice.

We will endeavour to provide you with the details of the well kill schedule today so that review team members have a chance to understand the problem before they arrive.

Please call me or Kate Baker if you have any questions or require clarification on the above.

With regards

Paul

From: Hurst, Kathleen T
To: Keese, David L
CC: Hurst, Kathleen T
BCC:
Subject: FW: Well Plan
SentOn: 5/17/2010 9:57:01 AM
ReplyTo:
Body:

-----Original Message-----

From: Baker, Kate H [mailto:Kate.Baker@bp.com]
Sent: Sunday, May 16, 2010 11:21 AM
To: gcooper@berkeley.edu
Cc: Brookes, David; Hunter, Tom; Tooms, Paul J
Subject: RE: Well Plan

Dear Prof. Cooper:

Attached please find the as drilled wellbore sketch for the MC252 #1 well. It shows the nesting of casing strings with the casing shoe depths indicated in both MD and TVD RKB. Kelly bushing and drill floor are used equivalently to reference that datum 75 feet above mean sea level. Liner tops are indicated with their depth, so that you can distinguish liners from strings going all the way to surface. Cement tops also are indicated schematically. The casing was not perforated during well construction. However, the TD of the well is at 18360 ft MDRKB and the 7" shoe is at 18304 ft MDRKB. No cement plugs had been set above the float collar at 18,115 ft MDRKB at the time well control was lost.

We have pressure readings at two locations currently, one below the lowermost ram bonnet and one from a gauge we installed subsequent to the sinking of the Transocean Horizon which reads pressure upstream of the kink in the riser.

FYI, James Dupree has proposed to Tom Hunter that he serves as a single point of contact for requests for information from the Secretary's Advisory Team. That may help to avoid the kind of confusion referenced in your note.

Yours faithfully,

Kate Hadley Baker

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-----Original Message-----

From: George Cooper [mailto:gcooper@berkeley.edu]
Sent: 16 May 2010 08:38
To: Brookes, David
Cc: Hunter, Tom
Subject: Well Plan

David,

I tried to call just now and left a phone message.

To reiterate, I am with the DOE team under Tom Hunter looking into the oil spill. We are having difficulty being clear as to the configuration of the well below the mud line. Would it be possible to provide the following info, either as text or better as a simple pencil sketch on a sheet of paper that can be scanned and sent to Tom ("Hunter, Tom" <tohunte@sandia.gov>) for onward distribution:

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SNL093-014798

TREX 009916.0006

Sketch of well, showing:

- Nesting of casing strings
- Depth to bottom of each string (any liners ?)
- Height of cement above shoe in each case (any intervals with csg but no cmt between csg and formation ?)
- Any perfs or open hole
- Position of cement plugs inside csg
- Any pressure taps near csg hanger or wellhead into inter-casing spaces

I suppose that the well was tested before deciding to plug it. I appreciate that such info is generally very confidential, but it would help us a great deal to get some feel for the flow capability of the formation since we are trying to get an idea of where and how serious the flow restrictions are in the formation, in the cement plug (if still there) and in and around the BOP

Some info on how much flow was obtained from the unobstructed well would be most helpful, viz: flow rate and delta p through what size of bean and for how long ?

Again, it would be best to send this direct to Tom Hunter.

Best regards, George Cooper

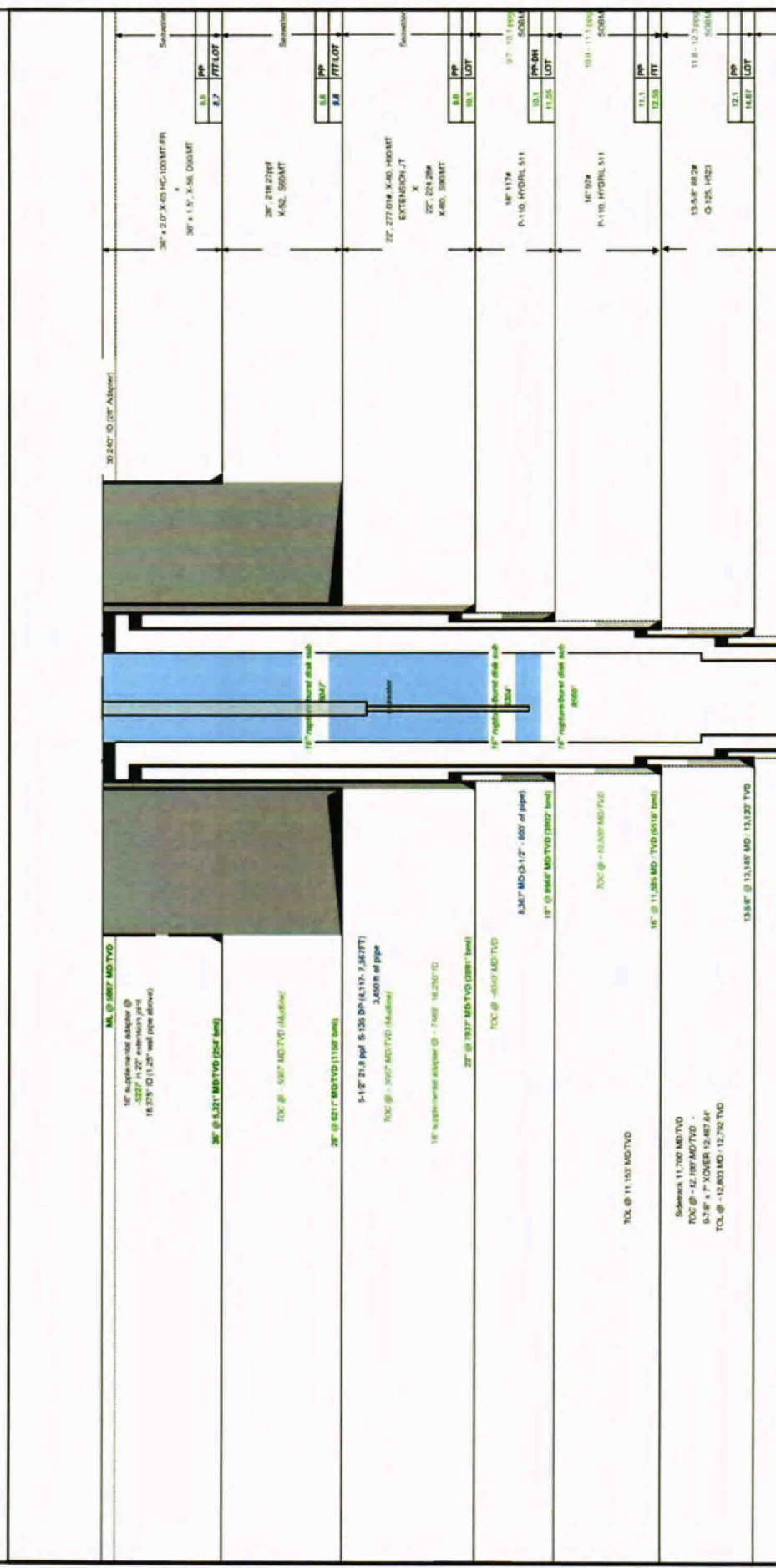
Attachments:

Macondo_MC 252_i_wellbore.xls

BP GoM Deepwater Exploration

Macondo MC 252

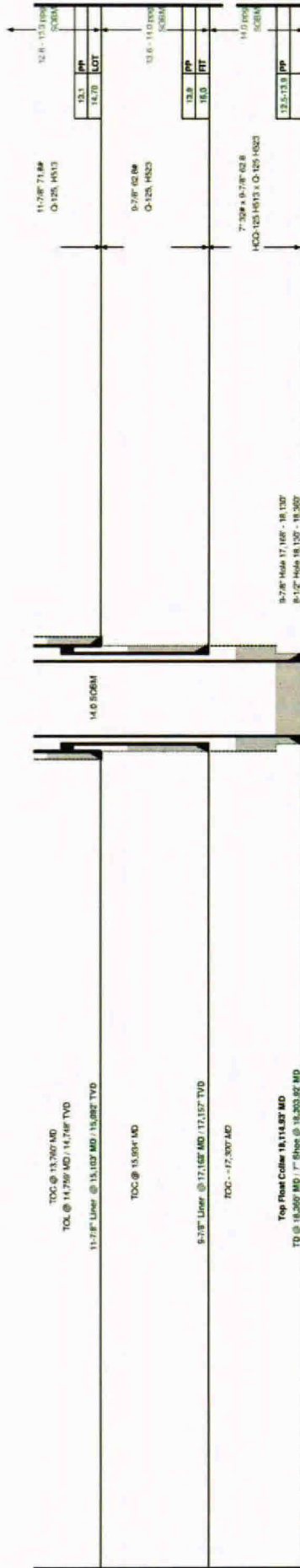
SORM mud weights are surface mud weights - not actual downhole mud weights
 80ppg 32 ppg 3-15 60ppg from surface to 4111 ft



0 x15

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Schematic AS DRILLED, 6/21/2011
 SNL093-014800



Schematic AS DRILLED, 6/21/2011 SNL093-014801

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